

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

United States Patent Application

for

**Apparatus and Method for Applying Setting Material**

TO THE COMMISSIONER FOR PATENTS AND TRADEMARKS:

Petitioners, Vadim V. Mikhaylenko and Marvin A. Pringle, pray that U.S. Letters Patent may be granted to them as the inventors and owners of all rights, title and interests to this application and the subject matter set forth in the following specification and claims.

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## Apparatus and Method for Applying Setting Material

### BACKGROUND OF THE INVENTION

#### 5 FIELD OF THE INVENTION

The present invention generally relates to an apparatus for simplifying the process of applying setting material onto a surface. More particularly, the present invention relates to an apparatus for applying a desired amount, level and location of setting material on a controlled area of surface for speedy and level setting of stones, such as marble, granite, or the like.

#### 10 BACKGROUND OF THE PRIOR ART

In setting stones or tiles, there is a limit to the time allotted. Specifically, there is usually a preset time for the setting material, generally including "mud," to set on a supporting surface. The minimum time to apply adhesive materials and "mud" to level a supporting surface, and then apply adhesive to a stone (or marble, granite, etc.) before placement is often limited.

15 In particular, minimum time is required for the installation of "mud" to level the supporting surface, and minimum time is required for the "mud" to set on that surface to a degree necessary for supporting stone or the like. To ensure economy and efficiency in setting stones or the like, time must be allotted to set up the required amount of stone or the like to be set in a day, and there must be a sure way of providing a level top surface to all of the stone.

20 Consequently, there exists an unfulfilled need for an apparatus and method for simple and efficient application of setting materials before stone placement.

### SUMMARY OF THE INVENTION

It is a general object of the present invention to minimize the time in setting stone and the like, so that more stone can be set per day than could be heretofore.

It is a further object of the present invention to provide a novel apparatus and method for applying setting material which may be easily and efficiently manufactured and marketed.

Yet another object of the present invention is to provide a unique apparatus and method for applying setting material which is compatible with common stone adhesives and manner of attachment.

Another object of the present invention is to provide an apparatus and method to efficiently set stones and the like on a level plane.

It is further an object of the present invention to provide a method for applying "mud" which will set in a minimum amount of time, and provide a plurality of globular masses of setting material to level a supporting surface. In attaining the foregoing and other objects, the present invention provides a plate which is supported at a predetermined distance above a supporting surface. The plate is of a predetermined thickness, and is surrounded by a wall which is higher than the plate so that mud can be scraped from the plate and cannot fall outside the plate. The supporting legs of the plate are of adjustable length so that accommodations can be made in the length of the legs, whereby the top surface of the plate will be level, regardless of the supporting surface. The "mud" referred to is more or less a standard component of setting material that will harden at a certain height in a minimum amount of time. In addition, setting material preferably includes an adhesive substance to be applied to the supporting surface before application of the mud and to the stone, tile, and the like before placement onto the mud.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

These and other features, aspects and advantages of the present invention will become better understood with reference to the following description, appended claims, and accompanying drawings, where

Fig. 1 is a perspective view of the plate assembly consistent with the present invention;

Fig. 2 is a somewhat schematic section of the plate as set up for applying setting material  
an embodiment of the present invention;

Fig. 3 is a somewhat schematic view in cross section showing the method of applying the  
5 setting material in an embodiment of the present invention;

Fig. 4 is a sectional view of the "mud" forming the setting material in accordance with  
the present invention;

Figs. 5 and 5a are exploded perspective views illustrating how the studs or legs of an  
embodiment of the present invention are mounted; and

10 <sup>705 C11</sup> Fig. 6 is an exploded perspective view of the plate assembly consistent with the present  
invention.

### **DETAILED DESCRIPTION**

15 The invention summarized above and defined by the enumerated claims may be better  
understood by referring to the following detailed description, which should be read in  
conjunction with the accompanying drawings. This detailed description of particular  
embodiments, set out below to enable one to practice the invention, is not intended to limit the  
enumerated claims, but to serve as a particular example thereof. Those skilled in the art should  
appreciate that they can readily use the concepts and specific embodiments disclosed as a basis  
for modifying or designing other methods and systems for carrying out the same purposes of the  
20 present invention. Those skilled in the art should also realize that such equivalent methods and  
systems do not depart from the spirit and scope of the invention in its broadest form.

Referring to Fig. 1, in order to set stones, tiles, or the like, an apparatus according to the  
present invention preferably includes a plate having a plurality of apertures, illustrated as sixteen

holes 5, a square plate 10, and upstanding peripheral wall 15, all of which may be made of any suitable material such as plastic, aluminum, steel, rubber, wood or the like, and held together in any suitable manner with such materials as screws, glues, bolts and the like. In an embodiment of the present invention, brass is used in making the apparatus and the apparatus is preferably welded together. Ideally, the holes 5 are drilled into the plate to prevent any undesirable surface defects. In an alternate embodiment, the holes 5 are stamped or punched through plate 10.

In the illustration provided, there are sixteen aligned holes 5. The number and dimensions of the holes 5 may vary with the overall size of the apparatus. In addition, the plate 10 may vary in size and shape. In an embodiment of the present invention, the plate 10 is square and manufactured with a border extending beyond the wall 15, leaving a circumferential plate 20. The circumferential plate 20 preferably extends a half inch on each side beyond the wall 15.

In the middle of each wall 15 section, there is a sleeve 25. The sleeve 25 is preferably secured at its lower end to the circumferential plate 20. The sleeve 25 includes a sleeve circumference 30 which is ideally secured to the wall 15. In an embodiment of the present invention, the sleeve circumference 30 contains a smooth surface along both the interior and exterior. In an alternate embodiment of the present invention, the plate 10, wall 15, and sleeves 25 can be made as one solid part.

A bore is preferably inserted through the sleeve 25 to enable a hole to be provided in the circumferential plate 20 in alignment with the sleeve 25. A leg 35 extends through each sleeve 25, of which there are preferably four, and the leg 35 is readily slideable into the bored hole. A spherical head 40 has a screw by which it is secured to the leg 35. A knob 45 on a threaded stud 50 extends through a threaded hole 55 for clamping engagement with the leg 35 to hold the leg in place. In an alternate embodiment of the present invention, rather than the spherical head 40, a

knob or the like is coupled to the leg 35. In yet another embodiment of the present invention, the leg 35 is threaded and the bored hole through plate 10 is threaded so that the leg 35 may be threadedly inserted through the circumferential plate 10.

The legs 35, of which there are preferably four, are each engageable with a threaded stud 50 in order to hold the plate 10 at a fixed height above the supporting surface. The height above the surface is determined by how far the legs 35 extend, and this can be adjusted quickly and readily by loosening or tightening the threaded stud 50.

If the supporting surface is flat and level, there will not be any need for adjustment by way of the threaded stud 50. If one area of the surface has a declivity or a rising high spot in it, this can be readily accommodated by way of adjusting one or more of the threaded studs 50 to adjust the leg 35. If there is a large area representing a change in height of the supporting surface, then this can be accommodated by changing the entire height of the apparatus by adjusting all legs by manipulating all of the threaded studs 50. In an embodiment of the present invention, the screw height is readily adjustable to conform with the surface 50.

As illustrated in Fig. 2, application of the setting material commences with placing setting material within the wall 15 as a shapeless mass 200.

Fig. 3 illustrates the step of smoothing the shapeless mass 200 of setting material across the top of the plate 10. Smoothing the shapeless mass 200 of setting material across the top of the plate 10 causes the setting material to fall through the holes 5 to form substantially globular masses 300.

Fig. 4 illustrates final formed setting material applied by an embodiment of the present invention. When the setting material falls through holes 5, substantially globular masses 300 of setting material corresponding to holes 5 form beneath the plate 10 having a common level

surface at 400. Globular masses 300 of setting material have a common level surface 400 no matter where they occur, so that the stone or the like is set on a level plane. The globular masses 300 are shown as four in number in Fig. 3, but are shown as five in number in Fig. 4 to illustrate that the number of holes 5 can vary in embodiments of the invention. The structure heretofore described is removed while the setting material or mud is still in a semi-solid state so that it remains as globules as shown in Figs. 3 and 4. Excess material can be left in a setting state on top of the plate 10 where it can be reclaimed for further use to form the globular masses 300 as shown in Figs. 3 and 4.

Sub C2 A sketch shown in Fig. 5, illustrates how the spherical head 40 is mounted to the leg 35. Fig. 5a illustrates a sketch of the mounting of the threaded stud 50 having knob 45 through threaded hole 55 of sleeve 25.

Fig. 6 is an illustration of an embodiment of the present invention for setting tiles. The apparatus includes a plate 10, holes 5 and the wall 15. The plate 10 and wall 15 are preferably welded together in order that there shall be no leaks, and fit quite nicely as shown. In this embodiment, no legs are included and setting material is placed within the wall 15 and smoothed over the holes 5. Preferably, excess setting material is removed once the setting material has filled holes 5. The apparatus is then removed to allow for placement of tiles or the like.

The assembly of an apparatus consistent with the present invention, is preferably a permanent one. The plate and the walls are of material that are sturdy, and the threaded stud 50, the sleeve 25, and the leg 35 are made of sturdy material as well as are ideally easily replaced. The number of holes shown herein is a handy number and may be chosen by the installer.

The number and size of the supporting surface and of the holes 5 are relatively small, speeding the application of setting material. Generally, the number of rows and columns of

holes are partly dependent on the type of stones or tiles or the like to be laid. The number and size of the holes 5 and other parts of the apparatus are a matter of the size of the apparatus, and are designed based on the needs of the artisan.

The setting material on which the stone, or other flooring such as tile, is laid preferably  
5 consists of three layers. The first layer is preferably of adhesive or coating material painted on the back of a stone. The next or second layer is ideally mud of the approximate thickness of the plate 10 or of the length of the legs 35, and the third is preferably another layer of adhesive or coating material of the thickness distributed by means of painting on the supporting surface, such as a floor.

10 The thickness of the first and third layers is so small that it need not be included in calculating the height of the globular masses 300 of mud. The setting of the adhesive or coating material forming the first and third layers is known in the art, and can be calculated. The adhesive or coating material is preferably spread by V-notched trowel.

15 The assembly as heretofore described is complete, and the number of holes is a matter of choice for the artisan laying the floor.